

**Practice: 561 - Heavy Use Area Protection****Scenario: #2 - Aggregate, Crushed Rock or Gravel on Geotextile****Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by livestock by surfacing with angular crushed rock and or gravel on a geotextile fabric foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice, The stabilized area will address the resource concerns of soil erosion, animal health and water quality degradation.

**Before Situation:**

This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion, animal health and water quality degradation. The soil surface around stationary livestock watering facilities, hay rings, feeding troughs, mineral boxes and/or other facilities have become highly disturbed due to frequent and intensity of use by livestock and have little to no vegetation to stabilize the soil surface. As a result, soil erosion, animal health, and water quality degradation are resource concerns that need to be addressed.

**After Situation:**

The soil surface around stationary livestock watering facilities, hay rings, feeding troughs, mineral boxes and/or other facilities has been stabilized with angular crushed rock placed on geotextile fabric to provide a non-eroding, well drained, skid resistant surface to reduce soil transport and prevent animal health and injury concerns. The treatment will address soil erosion, animal health and water quality degradation. All seeding or revegetation of disturbed areas is considered included in the installation. The typical stabilized area is surfaced with approximately 640 square feet of angular crushed rock and or gravel on approximately 84 square yards of geotextile fabric foundation material.

**Scenario Feature Measure:** Area of Rock and or Gravel

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 640

**Scenario Cost:** \$890.65

**Scenario Cost/Unit:** \$1.39

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$36.72	3	\$110.16
<b>Labor</b>						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$20.15	3	\$60.45
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	2	\$36.22
<b>Materials</b>						
Geotextile, non-woven, heavy weight	1210	Non-woven greater than 8 ounce/square yard geotextile with staple anchoring. Materials and shipping only.	Square Yard	\$4.01	84	\$336.84
Aggregate, Gravel, Ungraded, Quarry Run	1099	Includes materials, equipment and labor	Cubic yard	\$16.72	12	\$200.64
<b>Mobilization</b>						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	\$146.34	1	\$146.34

**Practice: 561 - Heavy Use Area Protection****Scenario: #3 - Aggregate, Crushed Rock or Gravel in GeoCell on Geotextile****Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by livestock by surfacing with angular crushed rock and or gravel confined in cellular containment grid on a geotextile fabric foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice, The stabilized area will address the resource concerns of soil erosion , animal health and water quality degradation.

**Before Situation:**

This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion, animal health and water quality degradation. The soil surface around stationary livestock watering facilities, hay rings, feeding troughs, mineral boxes and/or other facilities have become highly disturbed due to frequent and intensity of use by livestock and have little to no vegetation to stabilize the soil surface. As a result, soil erosion, animal health, and water quality degradation are resource concerns that need to be addressed.

**After Situation:**

The soil surface around stationary livestock watering facilities, hay rings, feeding troughs, mineral boxes and/or other facilities has been stabilized with angular crushed rock placed in cellular containment grid on geotextile fabric to provide a non-eroding, well drained, skid resistant surface to reduce soil transport and prevent animal health and injury concerns. The treatment will address soil erosion, animal health and water quality degradation. All seeding or revegetation of disturbed areas is considered included in the installation. The typical stabilized area is surfaced with approximately 640 square feet of angular crushed rock and or gravel on approximately 84 square yards of geotextile fabric foundation material.

**Scenario Feature Measure:** Area of Rock and or Gravel

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 640

**Scenario Cost:** \$2,505.33

**Scenario Cost/Unit:** \$3.91

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$36.72	3	\$110.16
<b>Labor</b>						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$20.15	3	\$60.45
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	6	\$108.66
<b>Materials</b>						
Geotextile, non-woven, heavy weight	1210	Non-woven greater than 8 ounce/square yard geotextile with staple anchoring. Materials and shipping only.	Square Yard	\$4.01	84	\$336.84
Aggregate, Gravel, Ungraded, Quarry Run	1099	Includes materials, equipment and labor	Cubic yard	\$16.72	12	\$200.64
GeoCell, 4"	1054	Precast Manhole with base and top delivered. 4' diameter x 4' depth. Materials only.	Square Yard	\$21.42	72	\$1,542.24
<b>Mobilization</b>						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	\$146.34	1	\$146.34

**Practice: 561 - Heavy Use Area Protection****Scenario: #4 - Other Cementitious Material, Crushed Gypsum Rock****Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by livestock by surfacing with crushed gypsum rock or other approved cementitious material to provide a stable, non-eroding surface. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice, The stabilized area will address the resource concerns of soil erosion, animal health and water quality degradation.

**Before Situation:**

This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion, animal health and water quality degradation. The soil surface around stationary livestock watering facilities, hay rings, feeding troughs, mineral boxes and/or other facilities have become highly disturbed due to frequent and intensity of use by livestock and have little to no vegetation to stabilize the soil surface. As a result, soil erosion, animal health, and water quality degradation are resource concerns that need to be addressed.

**After Situation:**

The soil surface around stationary livestock watering facilities, hay rings, feeding troughs, mineral boxes and/or other facilities has been stabilized with crushed gypsum rock or gravel to provide a non-eroding, well drained, skid resistant surface to reduce soil transport and prevent animal health and injury concerns. The treatment will address soil erosion, animal health and water quality degradation. All seeding or revegetation of disturbed areas is considered included in the installation. The typical stabilized area is surfaced with approximately 640 square feet of crushed gypsum rock and or gravel.

**Scenario Feature Measure:** Area of Rock and or Gravel**Scenario Unit:** Square Foot**Scenario Typical Size:** 640**Scenario Cost:** \$553.81**Scenario Cost/Unit:** \$0.87**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$36.72	3	\$110.16
<b>Labor</b>						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$20.15	3	\$60.45
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	2	\$36.22
<b>Materials</b>						
Aggregate, Gravel, Ungraded, Quarry Run	1099	Includes materials, equipment and labor	Cubic yard	\$16.72	12	\$200.64
<b>Mobilization</b>						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	\$146.34	1	\$146.34

**Practice: 561 - Heavy Use Area Protection****Scenario: #5 - Other Cementitious Material, Compacted Caliche****Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by livestock by surfacing with compacted caliche from a local source to provide a stable, non-eroding surface. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice, The stabilized area will address the resource concerns of soil erosion, animal health and water quality degradation.

**Before Situation:**

This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion, animal health and water quality degradation. The soil surface around stationary livestock watering facilities, hay rings, feeding troughs, mineral boxes and/or other facilities have become highly disturbed due to frequent and intensity of use by livestock and have little to no vegetation to stabilize the soil surface. As a result, soil erosion, animal health, and water quality degradation are resource concerns that need to be addressed.

**After Situation:**

The soil surface around stationary livestock watering facilities, hay rings, feeding troughs, mineral boxes and/or other facilities has been stabilized with compacted caliche to provide a non-eroding, well drained, skid resistant surface to reduce soil transport and prevent animal health and injury concerns. The treatment will address soil erosion, animal health and water quality degradation. All seeding or revegetation of disturbed areas is considered included in the installation. The typical stabilized area is surfaced with approximately 640 square feet of compacted caliche from a local source.

**Scenario Feature Measure:** Area of Rock and or Gravel

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 640

**Scenario Cost:** \$298.10

**Scenario Cost/Unit:** \$0.47

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.00	12	\$24.00
Earthfill, Manually Compacted	50	Earthfill, manually compacted, includes equipment and labor	Cubic yard	\$4.90	12	\$58.80
Track Loader, 95HP	935	Equipment and power unit costs. Labor not included.	Hour	\$75.34	2	\$150.68
<b>Labor</b>						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$23.61	2	\$47.22
<b>Mobilization</b>						
Aggregate, Shipping, Cubic Yard-mile	2360	Mobilization of aggregate material beyond 20 miles of local delivery from quarry to construction site. Cubic Yard-mile (Cubic Yard * miles of haul).	Cubic Yard-Mile	\$0.29	60	\$17.40

**Practice: 561 - Heavy Use Area Protection****Scenario: #6 - Reinforced Concrete with sand or gravel foundation****Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by livestock by surfacing with caliche material to provide a stable, non-eroding surface. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice, The stabilized area will address the resource concerns of soil erosion , animal health and water quality degradation.

**Before Situation:**

This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion, animal health and water quality degradation. The soil surface around stationary livestock watering facilities, hay rings, feeding troughs, mineral boxes and/or other facilities have become highly disturbed due to frequent and intensity of use by livestock and have little to no vegetation to stabilize the soil surface. As a result, soil erosion, animal health, and water quality degradation are resource concerns that need to be addressed.

**After Situation:**

The soil surface around stationary livestock watering facilities, hay rings, feeding troughs, mineral boxes and/or other facilities has been stabilized with reinforced concrete on a sand or gravel foundation to provide a non-eroding, well drained, skid resistant surface to reduce soil transport and to prevent animal health and injury concerns. The treatment will address soil erosion, animal health and water quality degradation. All seeding or revegetation of disturbed areas is considered included in the installation. The typical stabilized area is surfaced with approximately 640 square feet of reinforced concrete.

**Scenario Feature Measure:** Area**Scenario Unit:** Square Foot**Scenario Typical Size:** 640**Scenario Cost:** \$1,212.18**Scenario Cost/Unit:** \$1.89**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Concrete, CIP, slab on grade, reinforced	37	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$99.18	8	\$793.44
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.00	16	\$32.00
Earthfill, Dumped and Spread	51	Earthfill, dumped and spread without compaction effort, includes equipment and labor	Cubic yard	\$3.06	16	\$48.96
<b>Materials</b>						
Aggregate, Sand, Graded, Washed	45	Sand, typical ASTM C33 gradation, includes materials, equipment and labor to transport and place	Cubic yard	\$23.93	8	\$191.44
<b>Mobilization</b>						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	\$146.34	1	\$146.34

**Practice: 561 - Heavy Use Area Protection****Scenario: #7 - Surfacing for Access Ramps, Rock on Geotextile****Scenario Description:**

This scenario is to be planned with Conservation Practice Standard 575 - Animal Trails and Walkways. The stabilization of animal access ramps by surfacing with rock and or gravel on a geotextile fabric foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, and labor to install the surfacing material for an animal access ramp. The stabilized area will address the resource concerns of soil erosion and water quality degradation.

**Before Situation:**

The shoreline soil surface around a farm pond has become highly disturbed and has little to no vegetation to stabilize the soil surface, due to the frequency and intensity of use by livestock. As a result, soil erosion, water quality, and animal health are resource concerns that need to be addressed.

**After Situation:**

The access ramp is stabilized with surfacing material comprised of 640 square feet of rock and or gravel on approximately 84 square yards of geotextile fabric foundation material. for areas frequently and intensively used by animals and will address soil erosion and water quality degradation. Installation includes all materials, equipment, and labor to install the surfacing material for an animal access ramp. Mobilization and equipment are included in the Conservation Practice Standard 575 - Trails and Walkways.

**Scenario Feature Measure:** Area of Ramp

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 640

**Scenario Cost:** \$609.92

**Scenario Cost/Unit:** \$0.95

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Labor</b>						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	4	\$72.44
<b>Materials</b>						
Aggregate, Gravel, Ungraded, Quarry Run	1099	Includes materials, equipment and labor	Cubic yard	\$16.72	12	\$200.64
Geotextile, non-woven, heavy weight	1210	Non-woven greater than 8 ounce/square yard geotextile with staple anchoring. Materials and shipping only.	Square Yard	\$4.01	84	\$336.84

**Practice: 561 - Heavy Use Area Protection****Scenario: #8 - Surfacing for Access Ramps, Rock in GeoCell on Geotextile****Scenario Description:**

This scenario is to be planned with Conservation Practice Standard 575 - Animal Trails and Walkways. The stabilization of animal access ramps by surfacing with rock and or gravel on a geotextile fabric foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, and labor to install the surfacing material for an animal access ramp. The stabilized area will address the resource concerns of soil erosion and water quality degradation.

**Before Situation:**

The shoreline soil surface around a farm pond has become highly disturbed and has little to no vegetation to stabilize the soil surface, due to the frequency and intensity of use by livestock. As a result, soil erosion, water quality, and animal health are resource concerns that need to be addressed.

**After Situation:**

The access ramp is stabilized with surfacing material comprised of 640 square feet of rock and or gravel and cellular containment grid placed on approximately 84 square yards of geotextile fabric foundation material. for areas frequently and intensively used by animals and will address soil erosion and water quality degradation. Installation includes all materials, equipment, and labor to install the surfacing material for an animal access ramp. Mobilization and equipment are included in the Conservation Practice Standard 575 - Animal Trails and Walkways.

**Scenario Feature Measure:** Area of Ramp

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 640

**Scenario Cost:** \$2,188.38

**Scenario Cost/Unit:** \$3.42

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Labor</b>						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	6	\$108.66
<b>Materials</b>						
GeoCell, 4"	1054	Precast Manhole with base and top delivered. 4' diameter x 4' depth. Materials only.	Square Yard	\$21.42	72	\$1,542.24
Aggregate, Gravel, Ungraded, Quarry Run	1099	Includes materials, equipment and labor	Cubic yard	\$16.72	12	\$200.64
Geotextile, non-woven, heavy weight	1210	Non-woven greater than 8 ounce/square yard geotextile with staple anchoring. Materials and shipping only.	Square Yard	\$4.01	84	\$336.84